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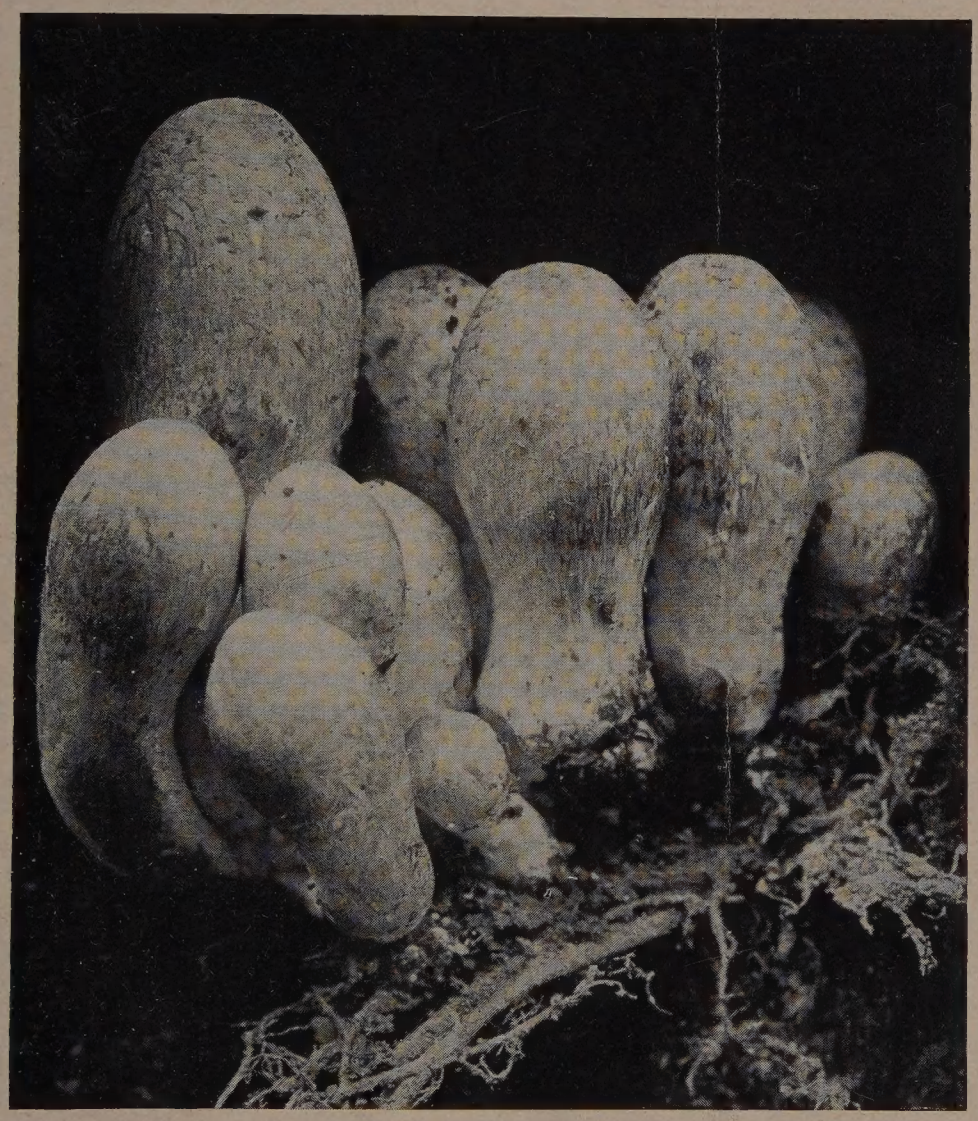
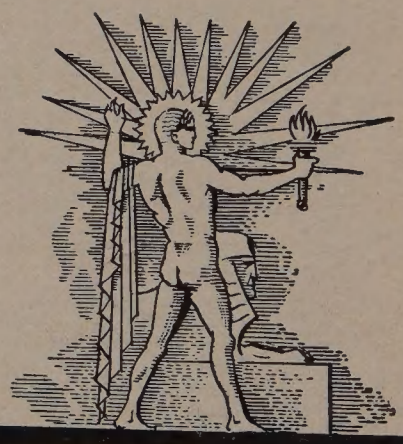
SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE •





MARCH 21, 1931

Not So Sudden After All

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The Weekly Summary of Current Science

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DO YOU KNOW THAT

Glaciers, like rivers, move more swiftly at midstream than near their outer edges.

The ancient Romans had indoor weather vanes, connected with a dial in the ceiling, to show how the wind was blowing outdoors.

To lessen the hazard of forest fire, Michigan conservation officials are urging that automobiles used in cross-country driving should be equipped with ash-trays.

In clearing the ruins of the theater at Corinth, archaeologists removed 36,000 tons of earth.

Saké, Japan's alcoholic drink which is made from rice, can now be made synthetically, thereby conserving the rice for use as food.

A specialist in the U. S. Bureau of Home Economics says that cabbage and bananas should be included in the diet of a two-year-old child.

An inscribed leaden tablet found in a Roman cemetery in Hertfordshire, England, bears a curse against a Roman woman.

The hum of transformers which used to annoy neighbors in a residential section of Chicago has been successfully deadened by the application of soundproofing material to the ceiling of the transformer room.

Cows, like babies, now have a feeding chart, designed for them at the New York State College of Agriculture.

Pima Egyptian cotton, which is successful in the Salt River Valley of Arizona, is not suited to Texas, government scientists warn growers who are trying it there.

Muskrat coats are no new fashion in America; an explorer in 1700 wrote that Indians of Louisiana, both men and women, sometimes wore cloaks of muskrat skin.

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Science Service presents over the radio, an address

TESTS FOR SUCCESS IN INDUSTRY

By Dr. L. J. O'Rourke, director of research, U. S. Civil Service Commission, who devises the new psychological examinations used by the nation's largest employing agency,

Friday, March 27, at 3:45 P. M., Eastern Standard Time

Over Stations of

The Columbia Broadcasting System

BACTERIOLOGY-PHYSICS

Germs Killed in Laboratory By High-Pitched Sound Waves

Audible Wave So Intense As To Be Called "Terrific Squeak" Used To Destroy Bacteria; Also Kills Red Blood Corpuscles

AUDIBLE sound waves, so high-pitched and so intense as to be best described as a "terrific squeak", have been used to kill bacteria by Prof. O. B. Williams of the University of Texas, bacteriologist, and Prof. Newton Gaines of Texas Christian University, physicist.

Sound waves of much higher pitch, so high as to be wholly inaudible, have in the past been used with fatal effect on living things, the pioneer experiment in this field being performed at the private laboratory of Alfred L. Loomis, banker-scientist of Tuxedo Park, N. Y. But the Texas experiments were the first in which audible sound waves were shown to be effective.

Prof. Williams and Prof. Gaines produced their sounds by means of a nickel tube, caused to vibrate at the rate of about 8,800 oscillations per second by means of powerful electromagnetic coils wound about its lower end. The oscillating current was supplied through 250-watt radiotron tubes, such as are used in radio broadcasting stations, carrying a plate voltage of about 2,000.

The upper end of the tube was set in an inverted bottle and surrounded with water. When the current was turned on, the vibration was so intense as to cause a little mound of water to rise a couple of inches above the surface.

A flask, containing the bacteria to be "rayed", was lowered into this turbulent water mound. The sound waves passed through the glass into the fluid containing the germs, causing a disturbance similar to that which was raised in the water.

Bacterial cultures "rayed" for 10, 20, 30, 40, 50 and 60 minute periods were compared for numbers of survivors. It was found that a definite mathematical relation exists between the time of exposure and the number of survivors. At the end of one hour in the field of the waves there were less than half of the initial number of bacteria left alive in the flask.

The waves have also been tried on red blood corpuscles and have been found to be destructive to them. This is in line with similar experiments performed at Tuxedo Park, where supersonic waves of ten to a hundred times the frequency were used.

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ASTRONOMY

Latest "Comet" May Have Been Tiny Planet

NAKAMURA'S "comet", which has appeared in astronomical lists as the latest to be discovered, may really have been an asteroid, or tiny planet. It was first found by means of photography from the Kwasan Observatory in Japan on November 14 by K. Nakamura. When a few later observations were made at the same observatory a calculation was made of its path, which seemed to indicate that it was a comet. But even though these data were circulated throughout the world, no other astronomers were able to locate it.

In a recent letter from Mr. Nakamura, just received by Dr. George Van Biesbroeck, of the Yerkes Observatory, the discoverer gives some of the details of the discovery of the object. These reveal that it was observed until November 29 at the Kwasan Observatory, but then completely disappeared from view. Mr. Nakamura stated that he is now calculating a new orbit, from all the plates made, and this should solve the mystery as to whether it was a comet, or an asteroid.

If it was not a comet, recent months have been singularly unproductive of cometary discoveries. The last before Nakamura's supposed discovery was on September 22 when Dr. Van Biesbroeck located Tempel's second periodic comet on one of its regular returns. The last discovery of a new comet was on June 2, when D. L. Forbes, in South Africa, found one of the ninth magnitude that was given his name.

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ECONOMICS

Housewife's Market Habits Affect Grocery Prices

THAT the modern housewife's fondness for small quantity marketing is often costly and may prove more so, is the warning issued by Miss Day Monroe of the New York State College of Home Economics.

Small quantity buying takes more of the grocer's time and adds to his expenses. And whatever buyers do to raise the cost of retailing they must pay for in higher prices to keep the grocers in business. Despite this fact, dealers report the practice of buying small cans and jars and small quantities of fresh foods is continually increasing.

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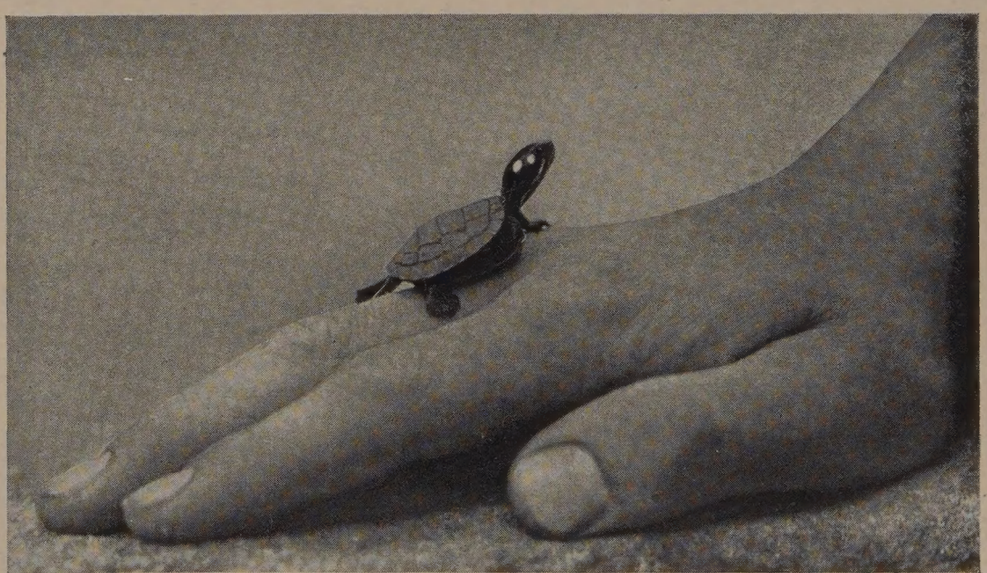

BABY TURTLE

Like a baby chick: very small as compared to its eventual size, and very naive and trustful. Photo by W. H. Carr, courtesy American Museum of National History.

MEDICINE

Baby Deaths From Convulsions Reduced by Sun and Oil

Tetany, One Type of Convulsion, is Found to be Associated With Rickets and Due to Vitamin D Starvation

INFANT deaths in America due to convulsions would be reduced by half if all babies were given the doses of cod-liver oil and sunshine required for proper growth, Dr. Martha M. Eliot, director of the child hygiene division of the Children's Bureau, U. S. Department of Labor, is convinced from her research in the community control of rickets.

One kind of infantile convulsions, called tetany, is associated with severe cases of rickets, which is prevented by ultraviolet radiation of the sun and by cod-liver oil.

Practically no cases of rickets occur in Porto Rico, where there is an abundance of sun and the houses have no windows to keep the ultraviolet rays from shining on the babies, Dr. Eliot found. In northern sections of the United States where the sun does not shine brightly and children are kept indoors most of the time, rickets is frequent and serious, particularly among children whose forebears came from the sunny climes. Negroes and dark-skinned children of southern European descent suffer most severely from lack of sunlight.

Entire communities in this northern region can be almost entirely freed from rickets, however, if babies are given sun treatments and cod-liver oil, an experiment conducted by Dr. Eliot at New Haven proved. For centuries cod-liver oil has been recognized as a good medicine for children but only recently has it been known that it contains vitamin D, the same vitamin that is formed in the skin by the action of the sun's rays.

A mixed section of New Haven, including some negro and southern European families, was selected for the study because of the susceptibility of dark-skinned babies to rickets. Whenever a baby was born, a nurse from the clinic visited the home and explained the treatments. The mothers were shown how to make their infants swallow the cod-liver oil, which should be taken daily after the child is five days old. When the babies were old enough for sun baths, the mothers were instructed how to give the child his dose of sunlight, outdoors, if the weather was fine, or by an open window during the winter.

Monthly examinations of the babies subject to this treatment over a period of three years indicated that only 27 out of the 480 babies born in the community during that time developed moderate or severe cases of rickets and in all 27 cases the mothers had failed to follow the nurse's instructions.

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METEOROLOGY

Spring May Come Early In Eastern Part of Country

SPRING will arrive early in the eastern United States, Prof. Charles F. Brooks of Clark University, Worcester, Mass., predicts on the basis of a recently discovered relationship between winter temperatures in Winnipeg, Canada, and spring temperatures in the eastern states.

Fred Groissmayr, a meteorologist of Passau, Germany, last year published in the *Monthly Weather Review*, official publication of the U. S. Weather Bureau, data showing that March and April temperature in the eastern United States is usually indicated by the January-February temperature at Winnipeg.

Prof. Brooks has compiled the daily maximum and minimum temperatures at Winnipeg from daily weather maps and finds that the temperature was 14.2 degrees Fahrenheit above normal in January and 19.0 degrees above normal in February, an average of 16.6 degrees above normal for these two months of 1931. In only one year in the period of record has Winnipeg had a warmer January and February combined.

Fifty years of weather records show that by multiplying this excess over normal temperature at Winnipeg by the factor 0.227, the expected departure from normal temperatures in a group of eastern U. S. cities can be obtained. This computation carried out indicates that the March-April temperatures will be 3.8 degrees above normal. Dr. Brooks therefore expects a warm March and April and an early spring.

Mr. Groissmayr, the German meteorologist, explains this correspondence between winter Winnipeg temperatures and spring eastern U. S. temperatures as being due to the lack of chilling of air passing over the Lake states during a mild winter. Reports indicate that this winter has been the most open season on the Great Lakes ever recorded. Winds passing eastward are therefore likely to be warm as there is no great area of ice to chill them.

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ASTRONOMY

Spring Begins, Though Sun Has Not Yet Entered Aries

THE WINTER of 1930-31 will officially come to an end on Saturday, March 21, at 9.07 A. M., eastern standard time. At that moment, according to the U. S. Navy's Nautical Almanac Office in Washington, the sun, as it travels northward among the stars, will be directly over the earth's equator. This part of its path is called the "vernal equinox" and astronomers for ages past have taken it as marking the beginning of spring.

The path of the sun, or the ecliptic, is divided into twelve signs, the names of which date from remote antiquity, and indicate the constellations as they were arranged at that time. At the vernal equinox, the sun enters the sign of Aries, which is another way of expressing the astronomical event that marks the end of winter.

Actually, on the 21st, the sun, as for some two weeks previously, will be in the constellation of Pisces, the fishes. Not until about a month later will it actually be among the stars that mark the imaginary figure of the ram. This is due to an effect called precession.

The constellations through which the sun seems to move form the zodiac. Precessional motion causes them to slip around the ecliptic, taking 25,800 years for a complete revolution. In about 23,000 years constellations and signs will again be the same, but by that time the motion of the stars among themselves will have made the configurations quite different from what they are now.

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PSYCHOLOGY

Teaching The Middle-Aged How To Be Truly Young

California Clinic Finds It Possible To Keep People At Peak of Their Powers While the Years Increase

By MARJORIE VAN de WATER

IN THE CITY of San Francisco a unique school has been started—a school for teaching youth to those of middle age and beyond. In charge of the "classes" is a woman who has herself most ably followed her own prescriptions. Dr. Lillien J. Martin was retired from employment fourteen years ago when she was made professor emeritus of psychology at Stanford University where she had previously taught for twenty-seven years. But she has gone right on working. Now, at 79, she is a pioneer in this unexplored field of research.

And a very fertile field she has found it. Employers, as well as the old people who have gone to her for advice, are enthusiastic about what she has done. Some large industrial concerns are sending to the clinic, as a matter of routine, all those middle-aged and elderly workers who are beginning to drop below their previous standards of efficiency.

It is Dr. Martin's belief, based on the results she has obtained from her work, that almost every worker can be held at the peak of his powers for a far longer period than had ever been thought possible. And her attempts to demonstrate her beliefs are welcomed by employers, for it is becoming more and more necessary for industry either to employ the middle-aged and old or to contribute directly or indirectly to their support.

For America is growing old. Dr. Warren S. Thompson, as a result of his research as director of the Scripps Foundation for Research in Population Problems, has come to the conclusion that only thirty or forty years from now we will have twice as many old people as today.

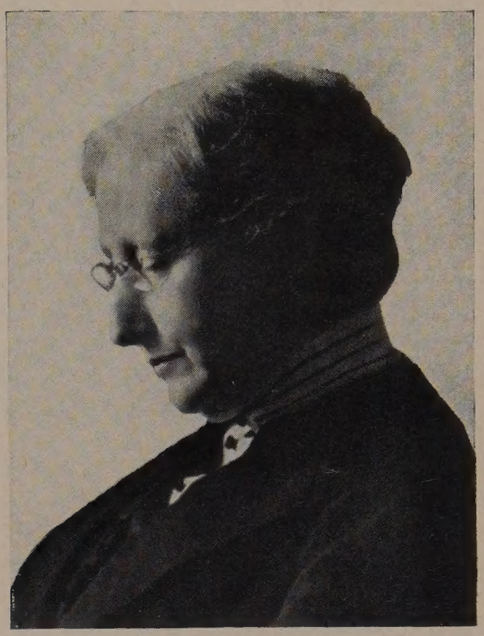
"Children will be relatively about three-fourths as numerous as now," he says, "and old people will be nearly twice as numerous. It will be as though we took about one-fourth of our children today and by some hocus-pocus transmuted them instantaneously into men and women who had passed their fiftieth year."

When the person applies to the clinic for advice or treatment, Dr. Martin first makes what she calls a psychodiagnosis of the case. She does not content herself with finding out the surface troubles which have been worrying the patient—the lowered output of work, the wandering attention, or the lack of ever-necessary "pep." She looks beyond all these symptoms for the underlying cause. This often involves a study of the history of the patient way back to his infancy, for it has been found that many of the troubles of old age have their origin in the nursery.

Fears, Dr. Martin has discovered, that have their origin in early youth and which are not overcome at that time, may remain submerged during middle life and become intensified again as the afflicted person approaches old age. These fears, whether they are of falling from a high place, of being run over by an automobile, of making errors, of being robbed, of being rebuked, or of becoming ill, may become so intense and persistent as to intefere seriously with the efficiency of the worker.

One fear that physicians have encountered so often that it is probable that nearly everyone is worried by it at one time or another, is the fear of heart disease. A pain in the arm, even though it may be sharp, is usually dismissed from the mind as unimportant. But when you feel a twinge in the left side of your chest, you do not regard it so slightly.

Lack of co-ordination of the muscles, Dr. Martin believes to be responsible for a multitude of ills, including timidity, dependence, and lack of initiative and self-confidence. She points out that these traits, though they are generally characteristic of aging people, are also found in children and adolescents. The child who stands about unwilling to join the other children, and the one who seems afraid to start on any adventure, is often the child who is physically awkward and muscularly untrained.



DR. LILLIEN J. MARTIN

A pioneer in the unexplored field of research—the psychology of old age.

And finally, Dr. Martin found that old age is blamed for a falling off in quantity and quality of work which is in reality due to emotional strain either in the home or at work.

She tells in her book, "Salvaging Old Age," the story of a woman bookkeeper who had kept her books perfectly for years. She then became conscious of a deterioration in her work. She made errors, and had to work early and late to keep her records up to date. The woman blamed her health, but a physical examination proved that there was nothing wrong with that. The real cause was found to be a series of nightly quarrels with her husband.

This case Dr. Martin believes to be typical of many in all branches of industry. "It is the lack of adjustment in the family relation," she says, "that plays perhaps the most common and absorbing role in fears and complexes, so that for every family squabble there is an actual loss in money to industry."

An investigation of causes of slowed production in the plant of the Western Electric Company recently conducted by G. A. Pennock showed that while fatigue was important in this connection, and rest periods greatly improved the efficiency, the emotional state of the employee was much more vital.

"Home conditions," said Mr. Pennock, "and other outside influences tended to create either a buoyant or a depressed spirit which modified production. Emotional status was reflected in performance; and the major component

of this emotional condition was attitude toward supervisor."

Here are some rules which Dr. Martin prescribes for the rehabilitation of old people and for the postponement of oncoming old age. You may try them yourself if you wish to preserve that schoolgirl reaction.

First, increase the speed with which you react to a signal. At the U. S. Bureau of Standards recently tests were made to see how quickly automobile drivers apply the brakes after they see a danger signal. Even if you respond to a danger signal within a half second, your car might have gone thirty feet during that time. That is the distance covered in a half second at forty miles an hour. But some drivers did not push down on the brake until one second had gone by. Their cars went 60 feet before the brakes were even touched. How far would your car go?

If you are one of the type with slow "pick-up," when you grow old this failing will probably be exaggerated. Now is the time to test yourself, and speed up if necessary.

Games requiring fast thinking and alertness are recommended for this purpose. Double solitaire is better than the slow moving chess. Tennis will help more than golf.

Next, give attention to your muscles and develop co-ordination in them. Regular physical exercise should be taken, although this need not necessarily be strenuous. The simple movements involved in shuffling cards made one old lady's wrists and fingers more flexible and added greatly to the facility with which she could use her hands.

The next step is to develop your powers of observation. Most people form habits of observation dependent upon their particular interests. In walking down the same street, the engineer may see only the type of construction used in the buildings, the architect will notice also the carvings about the doorways, the silk merchant may pay attention to the material in the ladies' dresses, while the physician will see none of these things but will be able to tell you of the physical defects of those who walk by.

As people grow older, their interests are inclined to narrow. and their field of observation likewise. To overcome this it is necessary to train yourself to look for some type of object to which you ordinarily pay no attention. If you practice this daily, and gradually add new groups. you will open up for yourself whole new fields of interest.

Perhaps the most helpful rule of all is one which it is most difficult to follow—learn to keep your mind on the present task. As exercises for this purpose, Dr. Martin recommends the learning of some new skill. Typewriting, until it reaches the automatic stage, is fine training. Learning to drive an automobile she regards as by far the best way to learn to concentrate the attention on the present and the world of reality outside one's own mind, imagination, and feelings. Reading is good training for mental alertness, if one reads comprehendingly.

Dr. Martin accompanies her prescriptions with the caution not to be discouraged if the improvement seems slow. It takes a good deal longer for grown people to learn than it does for children, but if they have sufficient interest and a little persistence they can learn well.

She began to learn to drive an automobile when she had passed her seventy-sixth birthday. She was seventy-seven and had had more than fifty hours of driving instruction before she obtained her driver's license. But now she drives better than many who learned at a much earlier age.

Can rehabilitated old people find places in industry? Dr. Martin says yes. Considerable success has rewarded her efforts at placing those who have been made able to deliver the goods. But the better time to think about readjustment is before the separation from employment takes place. Many firms today offer old age pensions, and they naturally prefer to have these go to those who have spent long service with them.

Old people, when they are at their best, can offer to the business world something which no one younger can. America showed her appreciation of maturity when she set a minimum age of 35 for her highest official—the President.

Thomas A. Edison, America's great inventor, and Paul von Hindenburg, Germany's great soldier and president, are each 83, and both are most active. George Bernard Shaw at 74 has just written perhaps his most scintillating play. Dr. A. A. Michelson, at 77, is still one of the world's greatest physicists. John R. Voorhis, who is 101, is still active as Grand Sachem of Tammany Hall. George F. Baker at 90 still keeps a firm grasp on his many financial interests. Sir Oliver Lodge is 79.

These men are young and active even at advanced ages.

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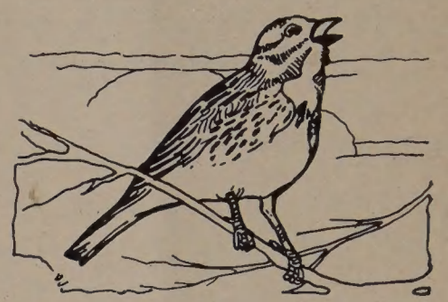
ORNITHOLOGY

Nature Ramblings

By **FRANK THONE**



Song Sparrow

IN the parts of the country where the winter is mild he stays with us all year round, and even in regions with more vigorous climates he goes away for only a little while, returning while lion and lamb are still contending for mastery in the air. The song sparrow is an unobtrusive little bird, apt to be taken for a common English sparrow by city dwellers, though he is much lighter in color, and incomparably above that slum-dweller in cleanliness, manners and morals.

He does not come into cities, anyway, except where there are large parks with good thickets for shelter and foraging grounds, for he is a bird of the wood-edges and brush-lined country roadsides. The grubbing hoe is a worse enemy to him, as to many of his small fellows, than is the small boy's gun or even the wandering cat.

Like the horned lark, he has but a small song, though that is to be prized for its being heard when other birds are gone or silent. It usually starts off with three soprano syllables: "See? see? see?" followed by a little ecstatic warble that varies a good deal in different individuals, and then begins all over again.

The song sparrow is a bird of wide climatic tolerance. It breeds in Canada from Great Slave Lake to Cape Breton Island, and thence south to Nebraska, Kentucky and the mountains of North Carolina. Its northern range in winter is about identical with its southern summer range, and thence south to the Gulf Coast.

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A young porcupine's voice has been described as a peculiar little call somewhat like the crooning of a human baby.

BOTANY

Giant "Sacred Lily of Africa" Makes Vegetable Gas Attack

Botany Students Are Driven from Laboratory While Odor Calls Afar for Carrion Flies

A GIANT flower that became a gas attack and drove a botany class out of its laboratory, is described by Prof. H. S. Conard of Grinnell College.

The plant is a relative of the calla lily and the Jack-in-the-pulpit, but sends its single flower-stalk to the height of a grown man. It is cultivated to a small extent as an oddity, but is seldom seen in bloom. Perhaps fortunately so, for it has a most overpoweringly bad odor when it does open.

It is commonly called "sacred African lily," but is neither a lily nor African, and anybody who once smelled it would hesitate to call it sacred.

Prof. Conard describes what happened in his laboratory:

"The bulb was about a foot in diameter when purchased. It was said to be six years old. It received no treatment at all, but was allowed to sit on the table in the living room. The shoot, already eight inches tall, soon began to stretch upward.

"Gradually the flower bud pushed out of its sheaths, and rose on its mottled two-inch stem to the total height of five feet, nine inches. The flower itself was nearly three feet tall. As it completed its stature, the gigantic calla-shaped blossom began to unfold. But not until it had reached its full maturity did it tell its story. And then it was indeed 'loud.'

"I first saw the flower, apparently in full splendor, on a Sunday afternoon, after invitations to visit it repeated for at least a week. The flower had a decidedly unpleasant odor, but it was kept in the dimly lighted, cool living room without giving much offense.

"The owner kindly offered me the privilege of taking the plant to my botany laboratory for the classes to see. So I drove over early Monday morning and got it. The odor was rather strong already.

"After two hours in the warm, bright classroom, the odor became a terrific stench of carrion that permeated the whole floor of the building. 'Another mouse' thought my associate, as she entered the third room away, and started in search of the trouble. She followed her nose into the presence of the gigantic flower.

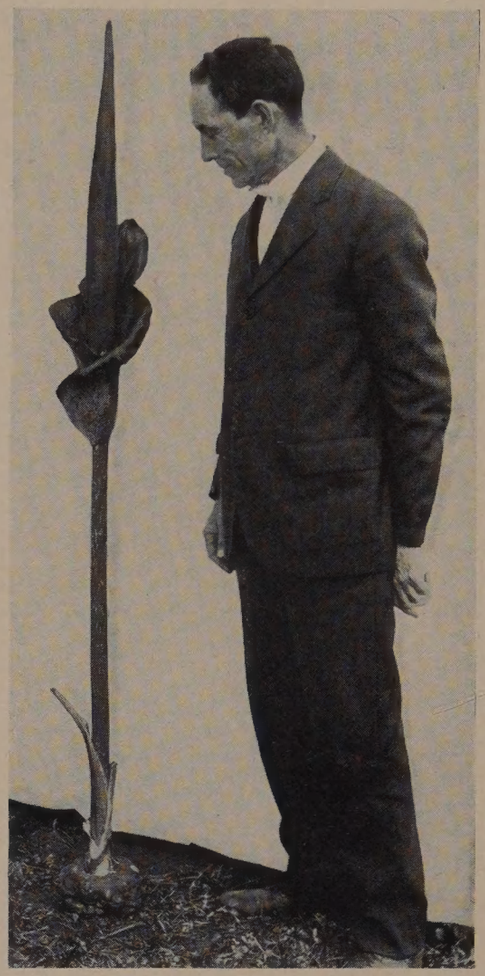
"Through Monday, Tuesday and Wednesday the odor was simply unbearable. We exhibited the plant a few minutes to each class, and then hurried it to a cold room with open windows. On Thursday morning the odor was scarcely audible. I looked into the great flower, and the stamens were wilted; the time for pollination was past. On Friday the huge spadix had crumpled over, and on Saturday the whole thing went into the flowerpress and the pickle jars.

"And now it was evident what it was all about. The pollen is carried from the cluster of staminate flowers to the pistillate flowers of this or another plant by carrion flies. The odor would lure them from long distances. The deep crimson-maroon sapdix and inside of the spathe had the color of raw bloody drying flesh. The lurid greenish and tawny mottling of the outside of the spathe had exactly the tints of a putrid carcass.

"To the blurred vision of a fly, guided more by scent than by sight, the imitation is doubtless perfect: dead meat set up conveniently on the top of a stalk! And the odor was exhaled adaptively, and not by haphazard, nor even by decay. The scent glands were active only during the three days during which the visit of flies could serve the useful purpose of pollination. No effort was wasted. The valves were opened and closed on schedule time.

"So in spite of its unhappy selection of insect friends, I hand it to this weird flower for the most astounding adjustment of structure and behavior in making the environment serve its living ends. That is what living things always do. They seem to command the environment, of which they are really the products."

Science News Letter, March 21, 1931



VEGETABLE GAS ATTACK

The "sacred African lily" which is neither a lily nor African, and which anybody who once smelled it would hesitate to call sacred. Prof. H. S. Conard of Grinnell College is examining the plant.

ORNITHOLOGY

Crow-Eating Fishermen Capture Sea Eagle

TO EAT CROW is to most of us the nethermost degradation of diet, but fishermen on a part of the coast of East Prussia use crows for food. During their migrating season they catch them in nets, killing the captured birds by biting their skulls, reports Dr. Theodor Ahrens, of Berlin.

Ornithologists take advantage of this strange game-taste of the fishermen by persuading them to release a part of their catch with identifying bands on their legs, so that their migrations may be traced through later recaptures.

Sometimes the fishermen make unlooked for catches in their aerial nets. Recently they took a sea eagle with a wingspread of about seven feet. The bird was turned over to scientists, who banded, photographed and released it.

Science News Letter, March 21, 1931

PHYSIOLOGY

New Trypsin Crystals Have Great Digestive Power

PROTEIN crystals of great digestive power have been isolated from commercial preparations of trypsin, digestive ferment secreted by the pancreas, by Drs. John H. Northrop and M. Kunitz of the Rockefeller Institute for Medical Research, Princeton, N. J.

This discovery is considered to be an important step in the understanding of the chemical mechanism of digestion. Until recently, the digestive ferments or enzymes, of which trypsin, pepsin and rennin are familiar, were matters of mystery to scientist and layman alike. Research such as that of the two Rockefeller Institute scientists is helping to clear up the mystery and is giving the practicing physician new weapons with which to fight disease in the human body.

Dr. Northrop has previously crystallized pepsin, the digestive ferment of the stomach.

Considerable interest, for the scientist at least, attaches to the fact that these two ferments, pepsin and trypsin, are now known to belong to the protein class of substances, to which also belong such foods as meat and nuts.

"The digestive power of the crystals is about ten times that of the most active commercial preparations," the investigators have reported of the trypsin crystals. They digest casein, principal protein of milk, and gelatin, another protein, in neutral solution. They are very unstable and lose some of their activity easily.

Science News Letter, March 21, 1931

ZOOLOGY

Teasing Otters Play Tag With Hungry Coyote

AN INTERESTING tag game between a coyote and two otters occurred in St. Mary's Bay in Yellowstone Lake not long ago.

Several airholes in the ice, caused by hot spots on the bottom of the lake, were used as winter quarters by otters. One day Park Ranger F. Sheldon Dart observed a coyote chasing madly back and forth between two of the airholes, about 25 feet apart. Approaching closer, he discovered that an otter occupied each of the holes. First one would appear at the opening in the ice, attracting the attention of the coyote and drawing him near the hole. Then, when the coyote came within three or four feet, the otter would dive back into the water and disappear.

By that time the other otter would appear at his hole, snarling to attract the coyote, which then would run after him, only to have him disappear upon close approach. Again the first one would go through his performance, and upon his disappearance into the water the second would appear. This kept up for about five minutes, the coyote racing back and forth from one hole to the other, until a gust of wind warned him of the proximity of a human being.

Science News Letter, March 21, 1931

NUTRITION

Anti-Rachitic Vitamin To Be Baked Into Bread

A METHOD of incorporating the anti-rachitic vitamin D in bread has been developed by the Pediatric Research Foundation of Toronto.

The method makes use of the fundamental process of incorporating vitamin D into the food in the form of irradiated ergosterol, which was developed by Dr. Harry Steenbock of the University of Wisconsin. A baking company with nation-wide distribution in the United States has been licensed under the Steenbock patents to make bread in which vitamin D is incorporated by the Toronto scientist's method. Irradiated ergosterol fat is mixed with the shortening used in the bread.

Science News Letter, March 21, 1931

ENTOMOLOGY

Fat Helps Insects To Withstand Cold

INSECTS that survive from one warm season to the next, sleeping through the winter like bears, prepare for the winter very much as bears do, by increasing the body store of fat. They further insure survival by geting rid of as much water as possible, making their body fluids difficult to freeze to the point of crystal formation, which would have fatal effects. Hibernating insects will freeze to death if their environmental conditions are disturbed, whether they are prepared for the cold or not. These are, in skeleton outline, the results of experiments by N. L. Sacharov of the agricultural experiment station at Saratov, U. S. S. R.

Science News Letter, March 21, 1931

IN SCIEN

CHEMISTRY

Odorless Varnish Is Recent Invention

AN ODORLESS varnish that can be used in close proximity to foodstuffs without damaging their flavor has been developed commercially. In a report to the American Chemical Society, Arthur J. Norton of North Tonawanda, N. Y., states that the new varnish makes possible the use of laminated board in the manufacture of refrigerators.

Although the use of laminated board has been steadily increasing in other industries because of its lightness, cheapness and durability, refrigerating companies were unable to take advantage of the new construction material because of its faint phenol odor, which is readily absorbed by almost any type of fatty product, such as butter.

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ANTHROPOLOGY

Amputated Toes Foiled Spooks of Stone Age

HOW TO KEEP the dead from walking abroad after a burial was one of the problems of New Stone Age Europeans, 7,000 or more years ago. This is the explanation offered by Henry Field, curator of physical anthropology at the Field Museum of Natural History, to account for the condition of a prehistoric skeleton which has just been received at the Museum.

Toes of the skeleton were cut off at the first joint before burial. Since several other skeletons taken from the same burial mound, in Hungary, were similarly mutilated, Mr. Field suggests that the Neolithic people of that region tried to make it impossible for the dead, or the spirits of the dead, to walk.

Excavators who discovered the skeleton bared only a small part of it, and then cut out the solid block of earth containing it and sent the block to the museum. Mr. Field and an assistant have now completed the excavation, and pronounce the skeleton to be that of a man about 35 years old.

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E FIELDS

BOTANY

Mushrooms' Sudden Growth Follows Long Preparation

See front cover

QUICK as a mushroom's growth, is the phrase we like to apply to sudden and unexpected developments. An oil town, a stock-market fortune, the reputation of the writer of a "hit," are all referred to the mushroom standard of comparison.

Yet the mushroom is no creature of magic, not-here yesterday and here today. The sudden manifestation that startles and fascinates us is only the fruition of months, perhaps years, of unseen preparation under ground, like the age-old waiting oil pool, the slow ripening of economic forces, the years of obscure labor behind the composer or playwright. A cluster of mushrooms can easily be as old as a forest of trees. Only until its time comes, it lives wholly as a concealed mass of white threads in the dark mold.

The picture on the cover of this issue of the SCIENCE NEWS LETTER, made by Cornelia Clarke, betrays a bit of the mushrooms' secret. It was taken in natural size just at the dramatic moment, when the "buttons," slowly swelling after weeks of feeding by the mycelial mass, are ready to leap forth and claim a place in the sun.

Science News Letter, March 21, 1931

MEDICINE

Discovery May Bring More Knowledge of Tumors

DISCOVERY of an inhibiting substance occurring in the tumor filtrate or extract of dry tumor material which is the causative agent of a chicken tumor has just been reported by Drs. James B. Murphy, O. M. Helmer, Albert Claude and Ernest Sturm of the Rockefeller Institute for Medical Research, New York.

The discovery was made in the course of investigations on animal tumors. Immediate application of the discovery to human tumors or cancers is not possible, but the method of investigation may point the way to valuable discoveries in the field of human tumors.

Attempting to purify the causative agent of this type of chicken tumor by adsorption with aluminum hydroxide resulted in a much less active agent in the purified substance. The fluid left after removal of the purified agent, however, proved to be far more active than the original extract. This fact, together with results of other investigations, led the scientists to conclude that both tumor-producing principle and some substance or condition inhibiting its activity existed in the fluid prior to adsorption with aluminum hydroxide. The absorption process removed far more of the inhibitor than of the principle, is the explanation of the greater activity of the supernatant fluid after removal of the purified agent.

Science News Letter, March 21, 1931

OPTICS

Frameless Eyeglasses May Replace Spectacles

A NEW TYPE of eyeglass which may replace spectacles in time is reported in a current issue of the scientific journal, *Discovery*. The new glasses, called contact glasses, are thin shells made of optical glass which can be worn under the eyelids and in contact with the eyeball.

They were originally invented for the correction of a certain condition of the eye known as keratoconus, in which the shape of the cornea is changed. The first contact glasses were made by Dr. A. E. Fick of Zurich in 1888. Recently Prof. Leopold Heine of Kiel has been experimenting with their use to correct visual disturbances as well as keratoconus. Shortsighted persons were helped by them, he found.

Some of the advantages of these glasses are that there is no restriction of the field of view; the axis of the glasses will always coincide with the axis of the eye, thus giving an equally sharp picture in all directions; and they cannot be distinguished, so that there is aesthetic advantage particularly pleasing to actors and women.

These glasses cannot be worn for long periods, as the pressure of the glass on the sensitive surface of the eye may be uncomfortable or even painful after a time. In the beginning they must be put in place and removed by the eye specialist. Above a certain strength of lens they would be too heavy and too thick to be worn.

Science News Letter, March 21, 1931

RADIO—ASTRONOMY

Radio Reception Worse as Sunspots Grow Plentiful

RADIO reception has been noticeably impaired coincidentally with the appearance of plentiful spots on the sun, Dr. Harlan T. Stetson, director of the Perkins Observatory, Ohio Wesleyan University, Delaware, Ohio, has observed.

Previous to the recent rise in sunspots, radio reception was the strongest ever recorded in several years of research undertaken by Dr. Stetson and his colleagues.

The recent rise in sunspots reported by Mt. Wilson Observatory in California was anticipated by Dr. Stetson on the basis of the 15-month cycle in spots that he recently discovered. The increase arrived exactly on schedule.

Dr. Stetson expects the sunspots to decrease after about April first and then radio reception will become as good or better than it was before the present sunspot outbreak.

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MINING

Commercial Potash Mining Begun in Texas Field

THE first commercial shaft ever sunk in the United States for potash has now reached a depth of a thousand feet, and potash minerals are ready to ship, the U. S. Geological Survey has been informed.

The shaft has been sunk by a firm formed to develop the great potash fields in Texas, recently explored by the Geological Survey. After government scientists had put down about twenty test holes the company drilled an equal number, and then began sinking its shaft. This has now passed through several workable beds of potash minerals, the best of which consists of a salt known as silvite.

Although this is the first deep mining operation for potash in the United States it is not the first time that this necessary fertilizer material has been produced in this country. In the arid regions of the West there are a number of highly saline lakes whose waters contain economic concentrations of potash salts. One of these, Searles Lake in California, has been actively worked for several years by a commercial firm.

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CHEMISTRY

German War Gas Pioneer Helps in Search for Gas Defense

Dr. Haber on International Red Cross Jury to Reward Finding of Long-Sought Mustard Gas Detector

YPERITE, or mustard gas, the terror of the trenches, is now being combated by the German chemist, who, perhaps more than anyone else, made chemical warfare an effective part of modern battle.

A touch of drama is added to the search of the International Red Cross for an effective means for detecting mustard gas in small atmospheric concentrations, by the presence on its jury of awards of Dr. Fritz Haber of Berlin-Dahlem. A prize of 100,000 gold francs has been offered for the most efficient detector, and tests of about a score of entries will be made in Paris soon.

Associated with Dr. Haber will be a brilliant group of scientists representing nations formerly enemies of his own, as well as one neutral power. They are Sir William Jackson Pope, professor at Cambridge University, England; Prof. M. F. Swarts of the University of Ghent, Belgium; Prof. M. G. Urbain of the Sorbonne University, France; and Prof. H. Zangger of the University of Zurich, Switzerland. Dr. L. Demolis, technical counsellor of the International Red Cross Committee, will act as secretary of the jury.

In the near future the International Red Cross Committee hopes to organize two similar competitions, one for the best anti-gas mask and the other for large-scale shelters against poison gas. The organization of competitions of this kind is in line with the campaign for the protection of civilians against chemical warfare which the International Committee is conducting and in connection with which it has brought about the formation in a number of countries of mixed commissions composed of chemists, doctors, technicians, representatives of the Government and of the Red Cross, to work out methods of defense.

Yperite has been termed the "most formidable weapon of aggression" because of its unusual characteristics of permanence and insidiousness. Mere contact with the soil or contaminated objects as much as two or three days after the attack is sufficient for a good case of being gassed. An odor of mustard is all that, at first, tells the tale. It is only after four to six hours that the victim begins to feel the effects—temporary blindness, suffocation, burning and blistering from the gas that penetrates all ordinary clothing. This retarded action is due to the fact that yperite is projected not in a gaseous state but as droplets.

To date yperite has eluded all attempts at mastery. The gas mask had, by 1918, been perfected to the point of protecting the wearer against all chemical warfare gases. Yperite, however, requires special protective clothing as well as a gas mask. Although many detectors were used during the war, none was completely successful in finding the whereabouts of the elusive mustard gas. The ideal detector is still being sought. It must be sensitive enough to signal even a feeble trace of the gas; and function rapidly enough to give time for self-protection. It must be easily handled and sufficiently inconspicuous for placement in front of the lines if necessary. Finally, it should be able to detect all the various gases used in chemical warfare.

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A seismologist declares that people in houses feel exaggerated effects of an earthquake, whereas people in automobiles get a minimum shock.

ECOLOGY

March Snowstorm Will Help Rather Than Hurt May Flowers

MARCH has brought more real winter weather to most of the country than any of the three preceding months, but even if the "blizzard" that marked the month's first week-end should be repeated it would probably not do the spring flowers any harm. More likely it would benefit them, for the country in general is still below the season's rainfall quota.

The sprouting plants and precocious flowers that come as early as the middle of March are always ready for a little snow, anyway, and no temperature above zero Fahrenheit bothers them.

One very curious plant, that seeks its place in the sun while winter still lingers in the skunk-cabbage. It sends up its fleshy-hooded purplish flower-structure when only the top of the soil has thawed, and frequently actually cracks the thin ice that lies over it in flooded swamps.

Another strange flower that is in bloom in the woods now, in spite of belated rough weather, is the witch hazel. This is a bush, whose bark, twigs and leaves are used in medicine. Its flowers always come in the winter. They are little, inconspicuous things, with narrow petals, that look like bits of yellow string, but they are genuine flowers none the less. They begin to blossom in late November or in December, usually stop during January and February, and then wake up and finish the job in March.

It is the early birds, rather than the precocious flowers, that are more likely to suffer from an encounter with a heavy March storm. Most of the hardy early comers, like robins and redwing blackbirds and cardinals, do not mind a few days of snow and wind; migrating birds are well used to fasting anyway.

But if a March storm turns partly to rain, freezing into "glaze" as it falls, it may coat their feathers and make them unable to move. In such frozen strait-jackets the poor things of course very easily perish. Or, if the birds are well sheltered during the storm they may fly forth afterward, seeking food but not finding it, because every weed stalk and tree twig is cased in impervious ice. At such times it is well for charitable householders to remember the migrating birds with gifts of crumbs, and a pan of warm water set where cats can't stalk the birds as they drink.

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PHYSIOLOGY

Discovery of Color-Blindness

"A Classic of Science"

Dalton Lived in a Blue and Yellow World; He Could See No Red or Green Colors

EXTRAORDINARY FACTS RELATING TO THE VISION OF COLOURS: with observations. By Mr. John Dalton. Read October 31st, 1794. Published in Memoirs of the Literary and Philosophical Society of Manchester, Vol. V. London and Manchester, MDCCXCVIII (1798).

IT HAS been observed, that our ideas of colours, sounds, tastes, &c. excited by the same object may be very different in themselves, without our being aware of it; and that we may nevertheless converse intelligibly concerning such objects, as if we were certain the impressions made by them on our minds were exactly similar. All, indeed, that it required for this purpose, is, that the same object should uniformly make the same impression on each mind; and that objects which appear different to one should be equally so to others. It will, however, scarcely be supposed, that any two objects, which are every day before us, should appear hardly distinguishable to one person, and very different to another, without the circumstance immediately suggesting a difference in their faculties of vision; yet such is the fact, not only with regard to myself, but to many others also, as will appear in the following account.

I was always of opinion, though I might not often mention it, that several colours were injudiciously named. The term *pink,* in reference to the flower of that name, seemed proper enough; but when the term *red* was substituted for pink, I thought it highly improper; it should have been *blue,* in my apprehension, as pink and blue appear to me very nearly allied; whilst pink and red have scarcely any relation.

In the course of my application to the sciences, that of optics necessarily claimed attention; and I became pretty well acquainted with the theory of light and colours before I was apprized of any peculiarity in my vision. I had not, however, attended much to the practical discrimination of colours, owing, in some degree, to what I conceived to be a perplexity in their nomenclature. Since the year 1790, the occasional study of botany obliged me to attend more to colours than before. With respect to colours that were *white, yellow,* or *green,* I readily assented to the appropriate term. *Blue, purple, pink,* and *crimson* appeared rather less distinguishable; being, according to my idea, all referable to *blue.* I have often seriously asked a person whether a flower was blue or pink, but was generally considered to be in jest. Notwithstanding this, I was never convinced of a peculiarity in my vision, till I accidently observed the colour of the flower of the *Geranium zonale* by candle-light in the Autumn of 1792. The flower was pink, but it appeared to me almost an exact sky-blue by day; in candle-light, however, it was astonishingly changed, not having then any blue in it, but what I called red, a colour which forms a striking contrast to blue. Not then doubting but that the change of colour would be equal to all, I requested some of my friends to observe the phenomenon; when I was surprised to find they all agreed, that the colour was not materially different from what it was by day-light, except my brother who saw it in the same light as myself. This observation clearly proved, that my vision was not like that of other persons—and, at the same time, that the difference between day-light and candle-light, on some colours, was indefinitely more perceptible to me than to others. It was nearly two years after that time, when I entered upon an investigation of the subject, having procured the assistance of a friend, who, to his acquaintance with the theory of colours, joins a practical knowledge of their names and constitutions. I shall now proceed to state the facts ascertained. . . .

From an Old Engraving.

JOHN DALTON

The chemist and author of the atomic theory, who was color-blind.

Of My Own Vision

It may be proper to observe, that I am short-sighted. Concave glasses of about five inches focus suit me best. I can see distinctly at a proper distance; and am seldom hurt by too much or too little light; nor yet with long application.

My observations began with the solar *spectrum,* or coloured image of the sun, exhibited in a dark room by means of a glass prism. I found that persons in general distinguish six kinds of colour in the solar image; namely, *red, orange, yellow, green, blue,* and *purple.* Newton, indeed, divides the purple into *indigo* and *violet;* but the difference between him and others is merely nominal. To me it is quite otherwise—I see only *two* or at most *three* distinctions. These I should call *yellow* and *blue;* or *yellow, blue* and *purple.* My yellow comprehends the *red, orange, yellow* and *green* of others; and my *blue* and *purple* coincide with theirs. That part of the image which others call red, appears to me little more than a shade, or defect of light; after that the orange, yellow, and green seem *one* colour, which descends pretty uniformly from an intense to a rare yellow, making what I should call different shades of yellow. The difference between the green part and the blue part is very striking to my eye: they seem to be strongly contrasted. That between the

blue and purple is much less so. The purple appears to be blue much darkened and condensed. In viewing the flame of a candle by night through the prism, the appearances are pretty much the same, except that the red extremity of the image appears more vivid than that of the solar image.

I now proceed to state the results of my observations on the colours of bodies in general, whether natural or artificial, both by day-light and candle-light. I mostly used ribbands for the artificial colours.

Red
(*By day-light*)

Under this head I include *crimson, scarlet, red,* and *pink.* All crimsons appear to me to consist chiefly of dark blue; but many of them seem to have a strong tinge of dark brown. I have seen specimens of *crimson, claret,* and *mud,* which were very nearly alike. Crimson has a *grave* appearance, being the reverse of every shewy and splendid colour. Woollen yarn dyed crimson or dark blue is the same to me. *Pink* seems to be composed of nine parts of light blue, and one of red, or some colour which has no other effect than to make the light blue appear dull and faded a little. Pink and light blue therefore compared together, are to be distinguished no otherwise than as a splendid colour from one that has lost a little of its splendour. Besides the pinks, roses, &c., of the gardens, the following British *flora* appear to me blue; namely, *Statice Armeria, Trifolium pratense, Lychnis Floscuculi, Lychnis dioica,* and many of the *Gerania.* The colour of a florid complexion appears to me that of a dull, opake, blackish blue, upon a white ground. A solution of sulphate of iron in the tincture of galls (that is, dilute black ink) upon white paper, gives a colour much resembling that of a florid complexion. It has no resemblance of the colour of blood. *Red* and *scarlet* form a genus with me totally different from pink. My idea of red I obtain from *vermillion, minium, sealing wax, wafers, a soldier's uniform,* &c. These seem to have no blue whatever in them. Scarlet has a more splendid appearance than red. Blood appears to me red; but it differs much from the articles mentioned above. It is much more dull, and to me is not unlike that colour called *bottle-green.* Stockings spotted with blood or with dirt would scarcely be distinguishable.

Red
(*By candle-light*)

Red and scarlet appear much more vivid than by day. Crimson loses its blue and becomes yellowish red. Pink forms an excellent contrast to what it is by day. No blue now appears; yellow has taken its place. Pink by candle-light seems to be three parts yellow and one red, or a reddish yellow. The blue however, is less mixed by day than the yellow by night. Red, and particularly scarlet, is a superb colour by candle-light; but by day some reds are the least shewy imaginable: I should call them dark drabs.

Orange and Yellow
(*By day-light and candle-light*)

I do not find that I differ materially from other persons in regard to these colours. I have sometimes seen persons hesitate whether a thing was white or yellow by candle-light, when to me there was no doubt at all.

Green
(*By day-light*)

I take my standard idea from grass. This appears to me very little different from red. The face of a laurel-leaf *(Prunus Lauro-cerasus)* is a good match to a stick of red sealing-wax; and the back of the leaf answers to the lighter red of wafers. Hence it will be immediately concluded, that I see either red or green, or both, different from other people. The fact is, I believe that they both appear different to me from what they do to others. Green and orange have much affinity also. Apple green is the most pleasing kind to me; and any other that has a tinge of yellow appears to advantage. I can distinguish the different vegetable greens one from another as well as most people; and those which are nearly alike or very unlike to others are so to me. A decoction of bohea tea, a solution of liver of sulphur, ale, &c., &c., which others call brown, appear to me green. Green woollen cloth, such as is used to cover tables, appears to me a dull, dark, brownish red colour. A mixture of two parts mud and one red would come near it. It resembles a red soil just turned up by the plough. When this kind of cloth loses its colour, as other people say, and turns yellow, then it appears to me a pleasant green. Very light green paper, silk, &c., is white to me.

Green
(*By candle-light*)

I agree with others, that it is difficult to distinguish greens from blues by candle-light; but, with me, the greens only are altered and made to approach the blues. It is the real greens only that are altered in my eye; and not such as I confound with them by day-

The Dinosaur
TRICERATOPS

which was at first thought to be a fossil buffalo is the subject of

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light, as the brown liquids above mentioned, which are not at all tinged with blue by candle-light, but are the same as by day, except that they are paler.

Blue

(*By day-light and candle-light*)

I apprehend this colour appears nearly the same to me as to other people, both by day-light and candle-light.

Purple

(*By day-light and candle-light*)

This seems to me a slight modification of blue. I seldom fail to distinguish purple from blue; but should hardly suspect purple to be a compound of blue and red. The difference between day-light and candle-light is not material.

Miscellaneous Observations

Colours appear to me much the same by moon-light as they do by candle-light.

Colours viewed by lightning appear the same as by day-light but whether exactly so, I have not ascertained.

Colours seen by electric light appear to me the same as by day-light. That is, pink appears blue, &c. . . .

Most of the colours called drabs appear to me the same by day-light and candle-light.

A light drab woollen cloth seems to me to resemble a light green by day. These colours are, however, easily distinguished by candle-light, as the latter becomes tinged with blue, which the former does not. I have frequently seen colours of the drab kind, said to be nearly alike, which appeared to me very different.

My idea of *brown* I obtain from a piece of white paper heated almost to ignition. This colour by day-light seems to have a great affinity to green, as may be imagined from what I have said of greens. Browns seem to me very diversified; some I should call red —dark brown woollen cloth I should call black.

The light of the rising or setting sun has no particular effect; neither has a strong or weak light. Pink appears rather duller, all other circumstances alike, in a cloudy day.

All common combustible substances exhibit colours to me in the same light; namely, *tallow, oil, wax, pit-coal.*

My vision has always been as it is now.

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GENETICS

Eye Color Is Not Dependable As Evidence of Paternity

MENDEL'S law of inheritance will not often serve as an aid to the harassed judge who must decide cases of disputed parentage. This natural "law" was recently cited, supplementary to man-made laws, in a case where a man with brown eyes claimed to be the son and heir of a couple, both of whom, it was testified, had blue eyes.

Scientists agree that parents having pure blue eyes do not have brown-eyed children, but this fact will not help the judge as much as it might appear, because many individuals with blue-looking eyes do not have eyes which would be scientifically classified as "pure blue."

Take a close look at the eyes of some blue-eyed person. If you use an ordinary reading or magnifying glass you will very likely discern a dark ring around the pupil of the eye. Or you may see streaks like the spokes of a wheel coming out from the center of the eye. Or you may see tiny flecks of color scattered over the entire surface.

Brown or black eyes are given their color by a pigment in both the front and back walls of the iris. Eyes without this pigment are completely colorless, but appear pink because of the color of the blood vessels. Such eyes are seen in albinos. Blue eyes have the pigment in the back wall of the iris, but none in the front. The blue look is due to the reflection of light through the colorless front walls.

The color of eyes may also change during the lifetime of an individual as a result of injuries to or diseases of the eye. And there is a normal change due to age. Nearly all infants of the north European races are born with blue eyes, and this color may persist until the child is eight years old. Then when they grow old the color may fade from their eyes, the eye color changing from brown to a pale bluish shade by a process of color absorption similar to that which changes brown hair to gray.

Science News Letter, March 21, 1931

Lincoln Science Desks

Stopped New Building Plans at Mankato, Minn.

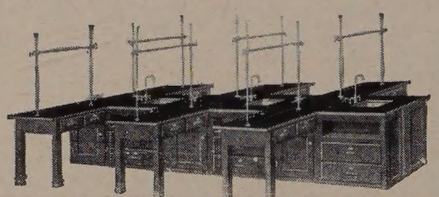
Good Counsel Academy Saves 2 rooms then Expands Science Classes

Is Your Old Laboratory Furniture Crowding Your Present School Building?

Don't build a new school until you've considered refurnishing the old laboratories. Perhaps your Science Classes are using too much room. Perhaps by installing Lincoln Science Desks a room or two can be released for other studies, without in any way affecting Science classes. Read what happened in Mankato, Minn.

Lincoln Science Desk No. D-503

Good Counsel Academy was on the verge of starting a new 3-story building. They first checked up on their science classrooms and this is what happened. One twelve-student Lincoln Science Desk and one Instructor's Desk with one of their old Chemistry Desks were installed in the smaller second floor recitation room. This released the old chemistry room and the larger recitation room for other classes. The new equipment made it possible to add Physics to General Science, Biology and Chemistry, the three subjects being taught. The two released rooms relieved the congestion, the new laboratory accommodates more students and the new addition to the school is not needed.



Lincoln Science Desk No. D-523

Write to Kewaunee for advice if your school is crowded. Our Engineers will tell you if it's possible to provide accommodations for all students in your present building by modernizing the Science Department equipment. There's no charge for this service and no obligation.

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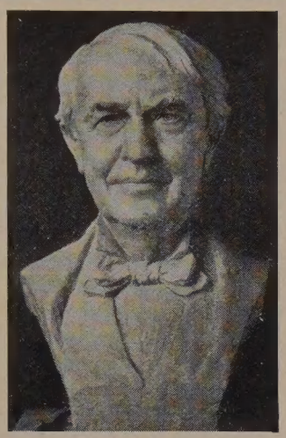

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MEDICINE

Fight Against Drug Addiction Is Launched by Doctors

Study of Narcotic Drug Problem Including Substitution Of Non-Habit-Forming Drugs Is Part of Campaign

A CAMPAIGN to limit the use of narcotic drugs to legitimate medicinal needs has been launched by the organized medical profession of the country. The campaign has as its object the two-fold purpose of reducing the extent of drug addiction and of forestalling legislative restriction of the individual physician's use of narcotic drugs.

Beginning with the issue for March 14, the American Medical Association will issue in its journal articles dealing with various phases of the narcotic drug problem. The effect of such drugs on the body, methods of treating drug addiction, indispensable uses of narcotics in medicine and surgery, substitution of non-habit-forming drugs for ones with addiction properties, and progress of research for a non-habit-forming substitute for morphine are the subjects of the series planned.

"It is the purpose of this series of articles to indicate to the medical profession the relatively few instances demanding the administration of opium or cocaine derivatives and the many substitutes therefor that may be available," states the editor of the Journal.

"Something under 25 per cent. of narcotic addiction, it is estimated, results from the beginning of the habit through previous use of drugs in medical treatment. This is after all only an estimate, based largely on evidence derived from the addicts themselves, who are notoriously an unsafe source of evidence.

"Nevertheless, the physician must strive to limit his prescribing of narcotics absolutely to those situations in which the narcotic may be considered indispensable. Thus he will avoid the possibility of unfavorable criticism."

In addition, the American Medical Association declares itself ready to aid in every possible way state medical licensing boards in their efforts to purge the medical profession of those who have any conscious part in the creation and maintenance of narcotic addiction.

"Their activities reflect unfavorably on a profession of high standing and it will not tolerate them in its midst," the American Medical Association states.

Science News Letter, March 21, 1931

ASTRONOMY

New Minor Planet Reported By Italian Is One of 1500

THE NEW planet reported discovered at Pino Torinese Observatory, Turin, Italy, is not a major member of the sun's family, like the earth, Mars or even Pluto, the ninth planet, discovered last year. It is one of the minor planets or asteroids, considered by astronomers to be fragments of a now disintegrated planet that once may have existed between the orbits of Mars and Jupiter.

There are some 1,500 asteroids capable of being observed by present telescopes, and the discovery of new asteroids is not an uncommon occurrence at observatories equipped for their study and giving attention to observing them. Most asteroids are now discovered by photographic exposures through a telescope guided to compensate for the earth's movement so that stars are photographed as small dots while asteroids appear as streaks on the plate.

Eros, the tiny planet which has just made an extremely close approach to the earth, is one of the most famous of the asteroids. Ceres was the first asteroid discovered on the first night of the

nineteenth century by the Sicilian astronomer, Piazzi.

In designating the new asteroid by the letters Ba, the Italian discoverer is following the precedent set for labeling asteroids. When further observations prove it to be hitherto unknown, its provisional name 1930 Ba will be changed to a number and Prof. A. Lacchini, by virtue of being its discoverer, will give it a name. The earlier asteroids were given mythological names but as the number of asteroids discovered has increased these minor planets have been named for cities, colleges, and even steamships, pet dogs and favorite desserts. The number of the asteroid is assigned by the Rechen-institut at Berlin which is the international center for asteroid research.

Science News Letter, March 21, 1931

ARCHAEOLOGY

Hopkins Professor To Restore Greek "Pompeii"

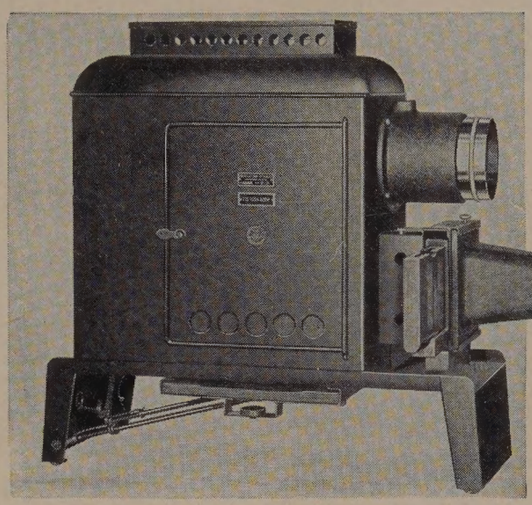
WITH THE hope of making Olynthus the "Pompeii of Greece" archaeologically, Dr. David Robinson of the Johns Hopkins is leaving this country to spend the next three months excavating at the ancient Greek city.

Walls of houses along the streets of Olynthus are still standing to a height of five or six feet, Dr. Robinson said. His expedition will excavate some of these to show what the homes and the house furnishings of the people were like, as Pompeii shows life in a great city of ancient Italy. In its prime Olynthus had a population of some 65,000 people, Dr. Robinson estimated from his first explorations at the site in 1928.

People of this Greek city were not crowded into apartment-like, compact dwellings, he said. Houses with ten to fourteen rooms on one floor have been found there. The expedition will clear the floors of some of these houses to show the mosaics and other styles of interior decoration in Greek homes of Alexander the Great's boyhood days. The excavations will also provide new information about the city planning of that time, it is hoped. Olynthus was destroyed by Alexander's father, Philip of Macedon, in 348 B. C., when Alexander himself was still a child.

Science News Letter, March 21, 1931

A naturalist says that muskrats work industriously to provide food and shelter for themselves, and they never play at all.



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First Glances at New Books

Biography

CRUCIBLES, THE LIVES AND ACHIEVEMENTS OF THE GREAT CHEMISTS—Bernard Jaffe—*Simon and Schuster,* 377 p., $5. The Francis Bacon Prize of $7,500 for the humanizing of knowledge has been awarded to this book. Mr. Jaffe has related in an attractive way the life story and work of sixteen famous chemists from Paracelsus on, and at the same time sketched the history of chemistry. Readers familiar with previous books in this field will be interested in the new biographies of Dr. Irving Langmuir and Sir J. J. Thomson, discoverer of the electron. "Crucibles" forms a stirring narrative, but those who wish to know the inner life of these men may be disappointed.

Science News Letter, March 21, 1931

Hygiene

HEALTH FOR EVERY MAN—Maurice A. Bigelow and Jean Broadhurst—*Silver, Burdett and Co.,* 235 p., 72c. Another text for teaching health to school children. The style is pleasantly informal and will doubtless appeal to the children. It is surprising to find the advice on nose blowing is directly contradictory to that of otolaryngologists, who teach that both nostrils should be kept open while blowing, in order to avoid infection of and damage to the ear.

Science News Letter, March 21, 1931

Psychology

CONFERENCE ON INDIVIDUAL PSYCHOLOGICAL DIFFERENCES — *National Research Council,* Distributed free. A stenographic report of the Conference, which was held under the auspices of the committee on National Intelligence Tests, and the committee on experimental psychology of the Division of Anthropology and Psychology.

Science News Letter, March 21, 1931

Botany

THE RUBIACEAE OF ECUADOR—Paul C. Stanley—*Field Museum,* 72 p., 35c. Of interest to systematic botanists.

Science News Letter, March 21, 1931

Horticulture

AMERICAN ALPINES IN THE GARDEN —Anderson McCully—*Macmillan,* 251 p., $2.50. Rock gardens are still new enough, in their larger popularity at least, to give our native species the "fair break" they have never had in the development of the more usual types of garden. This book therefore comes most opportunely. It is to be hoped that it will be the vade-mecum especially of those who are just at the beginning of their endeavor to make a small scrap of pet desert blossom like the rose.

Science News Letter, March 21, 1931

Sociology

RACE MIXTURE — Edward Byron Reuter—*McGraw-Hill,* 224 p., $2.50. The black man and the white each has his accepted place in a social group, but the person of mixed blood is an unadjusted person. Race mixture is here discussed as a sociological problem.

Science News Letter, March 21, 1931

Evolution

EVOLUTION — E. W. MacBride — *Cape and Smith,* 122 p., 60c. A little book that you can stick into your pocket to read at odd moments. It sums up the doctrines of and the evidences for evolution with a decided Lamarckian slant.

Science News Letter, March 21, 1931

Psychology

MENTAL MEASUREMENT OF PRESCHOOL CHILDREN—Rachel Stutsman—*World Book Co.,* 368 p., $2.20. Containing a description of, and a guide for using, the Merrill-Palmer mental tests for very young children, together with much general material on such topics as the resistance of children to tests, methods of studying personality, and special defects and difficulties. A number of interesting case studies are also included.

Science News Letter, March 21, 1931

Fisheries

PROPAGATION AND DISTRIBUTION OF FOOD FISHES, 1930—Glen C. Leach—*Government Printing Office,* 68 p., 15c. A Bureau of Fisheries document (No. 1098) giving the record of many activities.

Science News Letter, March 21, 1931

Biology—Education

BIOLOGICAL FOUNDATIONS OF EDUCATION—O. W. Caldwell, C. E. Skinner and J. W. Tietz—*Ginn,* 534 p., $2.72. A book for the teacher's own study rather than for the biology classroom. It makes a serious endeavor to get past the mass of fact and coordinating theory that makes biology itself, to find behind these their meaning in terms of human thought and conduct.

Science News Letter, March 21, 1931

Conservation

THIRTY YEARS MORE FOR WILD LIFE — W. T. Hornaday — *Scribner's,* 292 p., $2.50. A pioneer people in a land of apparently unlimited game has become, in less than two generations, an urban people in a largely gameless land. The time has been sufficient to wipe out some species and to reduce most of the remainder to the danger point, but the time has not been sufficient to effect much change in the hunting psychology of the people. Here one of the leaders in the fight to save the goose (and other birds and mammals) that make the golden shooting tells of a generation of checkered discouragements and progress in persuading gentlemen sportsmen to give the game a chance—and in finding means to compel those who are neither gentlemen nor sportsmen to do in like manner.

Science News Letter, March 21, 1931

Archaeology

THE ANCIENT MIMBRENOS—Paul H. Nesbitt—*Logan Museum,* 105 p., $1.50. That the Mimbres culture, which produced the finest of all Pueblo art, developed steadily and gradually is one important conclusion drawn in this report. The report is based on extensive excavations at the Mattocks Ruin in the Mimbres Valley of New Mexico, in 1929 and 1930.

Science News Letter, March 21, 1931

Ornithology

THE ISLAND OF PENGUINS—Cherry Kearton—*McBride,* 246 p., $3. Any mention of an island of penguins necessarily conjures up the shade of Anatol France. The author of the present work, however, actually had the curiosity and energy to go and live with the penguins on a little island for a long time, observing their ways with an eye less jaundiced toward the weaknesses of her own species. Therefore, though she does begin the book with an allusion to Lilliput, she contrives to be both informative and amusing without flavoring her dish with the bitter herbs used so freely by both France and Swift.

Science News Letter, March 21, 1931

Psychology

STUDIES IN PHILOSOPHY AND PSYCHOLOGY—G. F. Stout—*Macmillan,* 408 p., $4.50. Essays discussing various theories and topics of psychology from the philosophical point of view.

Science News Letter, March 21, 1931